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THE CLOSE RELATIONSHIP EXISTING BETWEEN THE GENERAL PRACTITIONER AND THE OPHTHALMOLOGIST AND OTO-LARYNGOLOGIST.

BY T. H. ODENEAL, M.D., BEVERLY, MASS.,

Ophthalmologist and Oto-Laryngologist to the Massachusetts State Infirmary.

ALTHOUGH the general physician of today is, as a rule, well read, it is a physical impossibility for him to read all the journals published, first, because it would be a financial load of no mean proportions; secondly, because of the infrequent appearance in the journals for which he is subscribing of the subjects on which my paper is based; and thirdly, because of the paucity of information and references to these subjects in the text books on the practice of medicine, he is often in ignorance of the relations existing between certain general symptoms and the diseases of the anatomy of eye, ear, nose, and throat.

It seems, therefore, that a paper dealing with those symptoms (in concrete form) which oftentimes have their origin in the eye, ear, nose, or throat, will be of value both to the physician and the patient, and indeed it is at the instigation of a well-known physician that I offer this article.

Certain symptoms ordinarily looked on by the physician as some general disturbance of the metabolic, systemic, or nervous function of the body, may be traced to an affection of the particular anatomical point dealt with by the ophthalmologist and oto-laryngologist.

In consideration of the particular parts involved, I will take them up in consecutive order.

THE EYE.

Refractive and Muscular Errors—Due to complex anastomoses of the sensory and sympathetic nerves of the eye, reflex disturbances originating in the eye are very common.

Gastric and Intestinal Disorders: A patient visits the doctor complaining of nausea and vomiting, constipation, dizzy spells, seeing double at times, loss of appetite, headaches, with consequent malnutrition. Various remedies are prescribed, lavage practised, test meals given, diet, tonics, and fresh air prescribed, with some improvement, but of short duration. A diagnosis of nervous indigestion is perhaps made, and the patient allowed to drift, until seen by a more advanced physician, who orders the eyes examined, when a muscular or refractive error is perhaps disclosed, glasses or muscular exercises prescribed with relief of the symptoms.

Lack of proper digestion and a flatulent condition of the intestine are often present from eye strain.

Nervous System: Extreme degrees of nervousness bordering on insanity are sometimes present. Hysteria in children is often relieved by correction of refractive errors. School children with only slight errors sometimes are very nervous, cannot remain long seated, are constantly moving about or wishing to play, and cannot concentrate long on one thing, for example, their studies. Convulsive attacks occasionally occur. There is pain in the eyes or reflexive pains in remote parts of the body, nervous twitchings of eyes, fingers, or lips, and squinting. Masturbation in children, in my opinion, is occasionally caused by refractive errors. Various habits, which the mother attempts to correct in the child, such as snuffling, sucking the thumbs, picking the nose, etc., can often be laid to the eye. Neuralgia, unilateral, of orbit or temporal region, may be complained of by adults. Painful spots on the head, tender to the touch, are met with. Headaches are common, but may be absent, generally localized in the frontal or occipital region, usually worse as the day advances, but often present on arising in the morning. Close work (reading, embroidering) aggravates or brings it on. "Dizzy" spells are complained of frequently and may come on while in the act of stooping or arising suddenly, or when observing something closely, as, for example, attempting to read the name of a street on an approaching car. A person will be attacked suddenly while walking on the street. Entering a lighted room from a dark one may bring on an attack of dizziness.

In the cases of muscular imbalance the vision may be perfect, also in a great many of the refractive error cases the patients may aver that they see perfectly. Children, previously healthy, may gradually become morose, disinterested in all children's pastimes, lose their appetite and fall off in weight, a physical examination producing nothing abnormal, tonics being prescribed, and the child withheld from school, without any improvement, a simple refractive error being the fault.

Glaucoma: In this disease (increased intraocular tension) the patient complains of headaches which are often violent, commonly called "migraine" (some oculists even go so far as to say that all cases of migraine are due to an increased intraocular tension), but may be very slight or absent. Usually the headache is very frequent or constant and generally deep seated behind the eyes. Seeing spots or flashes of light before the eyes is often complained of, or a halo about a light is noticed with a ring of colors. The vision gradually diminishes, a film appearing before the eyes. Passing acquaintances without recognizing them (due to the narrowed fields of vision) is complained of. This disease results in blindness, if allowed to continue, and should be recognized at the earliest possible moment.

Miscellaneous: Disease of the endocrinous glands is closely allied with the eye, especially the disease known as goitre. The ophthalmologist is in a position to recognize goitre long before any general diagnostic symptoms are manifested. In this disease such eye symptoms as Stellwag's, Moebius', Gifford's, Kocher's, von Graefe's, Mueller's, Joffroy's, and exophthalmos may be present, some of them presenting the earliest symptoms. Hemianopsia and optic atrophy are sometimes present. Many of the cases of choroiditis seen by the ophthalmologist are early signs of goitre before other manifestations present themselves.

Paralysis of the ocular muscles and changes in the fields of vision (perimetric examination) are of particular assistance in localizing brain tumors or abscesses, and often are the only indications of the disease. Pupillary reactions and fundus changes are sources of great help as well.

Affections of optic thalamus with the consequent symptoms such as sensory disturbances, hemiataxia, etc., are well nigh impossible of diagnosis without the aid of the ophthalmologist.

The diagnosis of disease of the hypophysis is aided very much by the examination of the eye grounds, whether of the hypo- or hyper-pituitarism type or a mixture of the two (the most common). Symptoms such as acromegaly, gigantism, asexual development, headaches, stupor, lack of mental development are usually present.

In tabes, palsies of the various eye muscles may occur (20% of cases) temporarily, to disappear and return again at a later date. Eye examination should be advised on suspicion of tabes. Diminution or loss of color perception are early signs of optic atrophy which accompanies about 10% of these cases. The Argyll-Robertson pupil occurs in about 80% of cases. Irregularity and inequality of the pupil are early signs.

THE NOSE.

Maxillary Sinus: Disease of this sinus is generally easily recognized, and therefore I will dismiss it with a few remarks. An acute attack is often mistaken for an abscessed tooth. The pain is sometimes referred to the ear, which may be the only sign of pain; tenderness over the infraorbital area is present. In chronic cases the pain is negligible except when the drainage is prevented from any cause. A febrile rise in temperature may occur in the evenings, resembling hectic fever, this being due to absorption of toxins from the pus present; this type of sinuitis often remains unrecognized. A discharge of pus from the nose is usually present. A neuritis of the side of the face may be complained of, no other symptoms manifesting themselves, the second branch of the fifth nerve being the one affected. A vacuum disease of this sinus is described, causing reflex pains or neuralgia in the teeth, orbit, or throat, etc., or a hacking cough.

Frontal Sinus: Headache, unilateral or bilateral, usually appearing about 10 o'clock in the morning, is complained of, aggravated by stooping. Pus is discharged from nose at intervals if in the purulent stage. In acute cases the pain is severe, sometimes resembling the incipient stage of herpes ophthalmicus and the bone is tender to pressure over the supraorbital area. Vision may be disturbed. In the chronic cases the patient becomes anemic and neurotic, of an irritable temperament and complains of a bad taste in the mouth, and the digestion is disturbed. These chronic cases sometimes lead to suicidal mania.

Ethmoids: In disease of these cells a chronic cold is present, pus is discharged from the nose (except in the hyperplastic cases). Reflex disturbances are common. Pain may be present in the eye of that side, and visual disturbances with their consequent train of symptoms as explained under refractive errors, headaches, or neuritis occur. A case is reported of violent colicky pains resembling appendicitis as having occurred due to the retention of pus in the cells. Absorption of toxins from the pus may cause disease in remote parts of the body, as rheumatism, nephritis, and bronchitis. Nervous disturbances, in children especially, may occasionally be laid to this disease. Stomach disturbances are common, due to swallowing the discharge from the nose. Hay-fever and cutaneous rashes may have their cause in diseases of these structures.

Disease from focal infections is caused in one of three ways: First, by metastasis of pathogenic germs from infected foci; second, by absorption into the circulation of bacterial toxins; and third, by disturbance of vasomotor balance, either through mechanical irritation or toxic action of bacterial poisons.

Sphenoidal Sinus: This sinus is situated in the body of the sphenoid with openings into the superior meatus of the nose. The roof of the sinus is very thin and has coursing along and internal to it the cavernous sinus enclosing the internal carotid artery, the third, fourth, and sixth cranial nerves, with the first and second branches of the fifth in close relation to the side of the sinus. The third branch of the fifth and the vidian are also sometimes closely related to it, due to the malposition of the sinus. The sphenoid is variable in size, one of the sinuses being almost absent occasionally, the other encroaching upon it due to its extraordinary size, being twice the normal at times. Again the sphenoid may be replaced by an enlarged ethmoid cell. The optic nerve is closely related to the sphenoid as is also the hypophysis. The sympathetic nerves supplying the upper part of the head are in close relation to this sinus, irritation of which causes vasomotor disturbances of the eye, nasal mucosa, etc. This sinus has been gaining in importance as the years go by, due, principally, to the untiring efforts of Dr. Sluder. The important part it plays in medicine should be known to the general physician. There may or may not be a suppurative condition of this sinus, a hyperplastic condition only being present at times without a discharge, which makes a diagnosis of disease of the sinus very difficult in such cases. Through erosions of the wall or roof of the sinus the various nerves mentioned above may be attacked, causing diminution of sight or blindness, partial or complete paralysis of certain eye muscles, neuralgia of the parts (teeth, upper and lower jaw, orbit, palate and side of nose or pharynx) supplied by the sensory nerves mentioned or the typical tic douloureux may be present. Headache, usually occipital or temporal, is generally present. The patient becomes extremely neurotic and the health is impaired. Absorption of the toxins or bacteria from the pus into the system may cause disease in other parts of the body the same as from any other focus of infection, rheumatism, arthritis, etc., being the result. Anaphylactic reactions are often met with, causing skin rashes or other forms of irritation, as hay-fever, bronchitis, etc. Asthma, contrary to past belief as being of nervous origin, is now thought to originate from toxic reactions, thus forming the nervous condition found in asthma. These toxins are frequently of nasal origin—the anaphylactic reaction being produced by the proteid constituents of the bacteria or toxin present. This reaction is identical with that of the anaphylactic reaction obtained from the proteids of food, and just in the same way that we have to withhold the especial food causing the anaphylaxis, so do we have to eradicate the focus from which these organisms and their toxins are generated.

Meckel's Ganglion (spheno-palatine): There are two classes of symptoms met with from disease of the spheno-palatine ganglion: First, the facial and associated neuralgias of which the tic douloureux is the acme of the height to which neuralgias reach; and second, the hemicranias and deep occipital pains. The tic is a most dreadful disease, causing untold suffering, so much so that the patient is willing that any procedure be tried for relief of the attacks. I have seen as many as 15 injections made without the aid of anesthesia, the patient ever ready for more, notwithstanding the fact that the needle is introduced 4 to 5 cm. through the side of the face (where the fifth is injected). Twenty or thirty attacks may occur in a day, lasting from a few seconds to as many minutes or longer, the slightest jar or opening the mouth producing an attack. Meckel's ganglion, often the seat of the trouble, is situated in the spheno-maxillary fossa, is about the size of a pea, and is reached most easily through the nose for purposes of treatment. The pains or neuralgia may be present in the palate, throat, teeth, gums, or run from side of the face into the ear, neck, or orbit. Injections of carbol-alcohol give relief.

Deviations and Spurs of Septum of Nose: Frequently the cause of unilateral neuralgia and headaches are due to irritation of the mucous membrane of the nose from contact with consequent reflexive nervous irritation. This may manifest itself in hay-fever attacks or asthma, or in children of extreme nervous irritability. I have known cases with pain in eye running into the supraorbital area with congestion of the conjunctiva of the eye, especially on accommodating, to be relieved by resection of a spur pressing into the mucous membrane of the opposite side of the nose, these cases having sought relief from various oculists, with consequent frequent changes of lenses without benefit.

Vagatonia Relating to the Nasal Sinuses: (Drawn freely from Hess and Eppinger, Fetterolf and Barke.) The fibres of the spinal nerves are divided into the animal and vegetative groups, the animal consisting of the sensory and motor fibers and supplying the organs of sensation and voluntary muscles; the vegetative, all the glands having ducts and all involuntary muscle tissue. The vegetative system consists of two divisions, the autonomic and sympathetic systems. The autonomic system arises from the brain and sacral region of the cord, the sympathetic from the cord alone. The fibres of the sympathetic have no names, but their supply is well known. The fibres of the autonomic, which arise from the brain, are contained in the third, seventh, ninth, tenth, and eleventh cranial nerves. Those from the cord are distributed through the sacral plexus. The action of these two systems is antagonistic, and they supply all glands with ducts and all involuntary muscles; therefore a normal functioning of the structures is dependent on the proper balance of the two systems. Irritation of the autonomic supply will cause hypersecretion and spasm; of the sympathetic,—hyposecretion and relaxation. These systems are controlled by the cerebro-spinal axis and the endocrinous glands. Adrenin stimulates the sympathetic system, and pilocarpin a part of the autonomic. Atropin acts as a sedative on the autonomic system. Where there is an excitation or irritability of the autonomic system pilocarpin injected in a small dose causes marked salivation, sweating, hyperistalsis of the intestine, etc. In suppurative conditions of the sinuses the toxins absorbed from the discharge may affect these systems as well as the animal system. In the animal system we get our palsies and sensory disturbances, as, for example, neuralgia of one of the branches of the fifth nerve. In the vegetative, we get spasm (of accommodation, for instance), or relaxation (dilatation of pupil) of the involuntary muscles and hyper (salivation, sweating) or hypo (dryness of skin, etc.) secretion of the glands supplied by the nerves already mentioned. In vagotonia the entrance to the pharynx is anesthetic, according to Hess and Eppinger. A case is reported of abdominal pains, hypersecretion, nausea, and vomiting, and marked nervous irritability caused by suppuration of the ethmoids, a typical case of vagotonia.

THROAT.

Faucial Tonsils: The tonsils are frequently the source of focal infection causing such diseases as rheumatism, nephritis, and arthritis (acute inflammatory, chronic, arthritis deformans). Pulling the anterior pillars forward may disclose inflammation when the tonsil appears normal. The lymphatic chain running from the epipharynx down behind the tonsils is often the seat of inflammation with consequent chronic sore throat. It is by this chain that infection is often carried to the ear. An enlarged tonsil does not always mean a diseased tonsil. The small, imbedded tonsil, which is the seat of frequent inflammatory changes, is the most dangerous tonsil. The best criterion for the removal of tonsils is frequent tonsillitis and I always advise against removal of the tonsils if they appear normal and if there have been no previous attacks, unless there is some disease of the system present which has followed a present attack of tonsillitis for which there is no accounting and which disease is known to follow tonsillitis. The typical infectious tonsil, which is always to be watched, is the small, submerged tonsil of a light purplish hue, cut up by adhesions and inflammatory bands, or the large oedematous, congested tonsil, with an irregular surface and hyperplastic bands of connective tissue dividing it, found in adults. The tonsil may contain cheesy material of a foul odor. Such tonsils cause malaise, and a feeling resembling what is called spring fever; also the stomach may be upset, with constipation present. In children, where there is a history free from attacks of tonsillitis or sore throat, the health of the children may be much benefited by removal, although no definite indication for such removal is present, a thorough physical examination having disclosed no ailment to account for the symptoms present. A tonsil which looks to be perfectly normal may contain a small fistulous tract leading to an abscessed cavity within the tonsil, which is found on incising the tonsil on removal. But, first of all, a clear dissection of the tonsil must be made in order to remove foci of infection in these cases, a small tag left behind causing as much absorption as the whole tonsil sometimes.

Who has not seen the post operative adhesions of the tonsil bed from imperfect enucleation, with a collection of foul detritus, food particles decayed, absorption from which is as great a source of danger as from the tonsil itself? The percentage of valvular heart lesions met with in the adult, having their origin in the tonsils, is much greater than supposed, and recognition in time will prevent a permanent lesion.

The connection between the thyroid gland and the lymphoid ring is not understood, but it is known that the thyroid and the lingual tonsils spring from the same bronchial arch, and that in Graves' disease the lingual tonsils, as well as the faucial tonsils, should always be examined; for it is definitely determined that in diseased condition of either their removal often benefits or cures the thyroid gland disease. I will say that the sinuses should also always be examined in Graves' disease. The question is asked, does the thyroid enlarge to combat some infection? If this be true, then the explanation is clear why the disease is benefited by removal of diseased tonsils. Cases of meningitis and cerebral abscess have been traced to the tonsil. A history is often obtained of frequent attacks of tonsillitis with, finally, all the symptoms of an acute attack of nephritis, following the last attack, disappearing, to follow another attack of tonsillitis. Deafness is caused by diseased tonsils, the infection entering by contiguity or through the blood supply and lymphatics. Various nervous disorders occur, such as esophageal spasm, recurrent cough, spasm of glottis, neuralgia of tongue, and blepharospasm. I think that it is an accepted opinion that normal tonsils in children act as barriers to infection; but a tonsil once diseased is never of any service to the human mechanism, for the character of the tissue is changed, the epithelium of the crypts is replaced by a degenerated form, the original type never reappearing.

Lingual Tonsils: Are frequently the cause of chronic sore throat, hacking cough, with tickling in the throat, or tickling referred to side of the throat or neck.

Oesophagus: Pouches in the oesophagus cause food eructation, with sense of foreign body in food passage, pressure symptoms or fullness in that region, with sour stomach.

THE EAR.

As is well known, cerumen in the canal of the ear has been known to cause convulsions or semi-epileptic attacks in children; any irritation of the ear is just as liable to do this. A chronic cough through reflex irritation may have its origin in the ear from an eczematous condition or cerumen in the canal. After an attack of acute otitis media or during a chronic otitis media suppurativa on appearance of acute articular rheumatism, an infection of the lateral sinus must be looked for, the symptoms of the joint affection often overshadowing the ear condition and the ear being neglected to the danger of the patient, the patient succumbing to an intercurrent infectious endocarditis presumably, the sinus having been lost sight of. Thrombosis of the sinus is often overlooked because the symptoms in many cases are mild and the sinus escapes suspicion on the appearance of a pyogenic process in some other part of the body. Acute inflammatory joints are now thought to have their origin in metabolic changes and it is therefore possible to have such an inflammation from non-infectious sinus thrombosis where the symptoms are necessarily mild and easily escape detection by the family physician.

Vertigo often has its origin in the labyrinth, acute labyrinthitis causes marked vertigo, ataxia, nystagmus nausea, and vomiting. In the chronic cases, the vertigo is the prominent symptom, that and the deafness; the nystagmus usually can be elicited by having the patient turn the eyes toward the normal side, but it may be absent and the function of the labyrinth found to be impaired by turning, the caloric reaction, etc. The semi-circular canals may be destroyed and the hearing remain intact, although the hearing is generally involved at the same time as the semi-circular canals. Cerebellar abscess will cause vertigo and nystagmus with ataxia. Cysts of the dura (cerebellar-pontine angle) will do the same, giving us a picture of labyrinthitis. Here we have headaches complained of, as noises in the ear are complained of in labyrinthitis. In cerebellar abscess or tumor, the patient may fall unconscious on the street, these attacks occurring with greater frequency as time progresses. The cerebellum is the center for coördination of joint movement (stabilizer), disease of one lobe allowing overproduction of movement of the joint (controlled by the center involved) of that side toward the side involved. Separate centers exist in the cerebellum for the wrist, elbow, ankle, etc., and the location of the cerebellar disease can be fairly definitely determined through the joints involved. This is determined by pointing tests and coincident caloric reaction, the cerebellar disease being distinguished from labyrinth disease by this method also.

In this paper I have mentioned only those subjects with few exceptions which are not immediately apparent and with which the general practitioner does not concern himself especially but which should ever be before him in order that he may give his patient every chance to recover from an affection, the cause of which it has been impossible for him to determine by a thorough and painstaking examination.

POST-INFLUENZAL ALOPECIA.

By Samuel Ayres, Jr., A.B., M.D. (Kansas City)
Boston.

[From the Department of Dermatology, Massachusetts General Hospital, Boston.]

In view of the almost daily occurrence of cases of alopecia following influenza it would seem pertinent to sum up our knowledge of the subject. The general medical practitioner is just as likely to be called upon to treat this disorder as the dermatologist; in fact, in the smaller localities he is the only one to whom the patient can go. And the patient deserves due consideration and rational treatment. Baldness may not be serious from the point of view of life and death, but it is extremely serious to the young man or woman who is rapidly losing a good head of hair, and it must be remembered that during the recent epidemic, the incidence of disease was much more common among young people than among people past middle life.

In Massachusetts the height of the epidemic was reached in October. The first cases of post-influenzal alopecia which were seen at the Massachusetts General Hospital came for treatment on December 10, or about two months later. Between December 10, 1918, and January 18, 1919, 24 patients have been treated, all of them under 36 years of age, and all but three females. Just why there should be such a predominance of females is not clear. There are several possible explanations: (1) Males may be less susceptible to post-influenzal alopecia; (2) post-influenzal alopecia may be less noticeable among men on account of the greater incidence of premature alopecia; (3) women and girls may be more anxious about the condition of their hair, whereas men and boys may not think the condition important enough to come to the hospital. In all but one of the twenty-four hospital cases the alopecia was of the diffuse type; in one of the hospital cases, and in the private case recorded, there were definite bald areas—alopecia areata. The time elapsing between the onset of influenza and the first intimation of alopecia varied from two to twelve weeks. (Allowance must be made for inaccuracy in the patient's memory as regards time of onset of influenza). Of those cases in which a time relation was recorded, practically as many occurred between the eighth and twelfth week after the onset of influenza as occurred up to the eighth week. In several instances the alopecia made its appearance during convalescence. Treatment of these cases consisted chiefly in the application of stimulating lotions and in the observance of scalp cleanliness. Insufficient time has elapsed to comment on results.

So much for statistics. It is to be hoped that further cases will be recorded in order to make a truly adequate study of the situation. Now let us briefly mention the nature of alopecia, the several types and the rational treatment. The literature is profuse and goes back to the days of the ancients. A large part of the writings are in tongues other than English. Hence it is easy to see that a complete résumé of the literature on baldness is out of the question.

There are a number of different types of alopecia—alopecia of old age, premature alopecia, alopecia with seborrhea, alopecia areata, toxic alopecia, etc. Various etiological factors have been cited to account for these several varieties of baldness, but as yet no definite conclusions have been reached which are capable of withstanding impartial criticism. In the alopecia of old age, Unna has found histologically an atrophy of the skin and hair follicles of the scalp. Sutton[1] has described a variety of premature alopecia characterized by a hidebound scalp and a diffuse hair loss under the name of alopecia indurata atrophica, which shows histologically condensation of the connective tissue, atrophy of the hair follicles and the epidermis, diminution, or absence of subcutaneous fat and a diminution in the number and size of the capillaries. Fewer bacteria were seen in the hair follicles than in two control sections from normal scalps. These atrophic changes described by Unna and Sutton may represent the end-results of an impaired circulation in the scalp, either from local or general causes. Writers have variously attributed premature alopecia, with or without dandruff, to (1) a superficial infection of the hair follicles; (2) the effect of wearing tight hats; (3) sedentary occupations, etc. Alopecia areata is said to be neurotrophic in origin and commonly to occur after mental strain, fright, etc. Toxic alopecia—and under this heading comes the particular type which we are studying—is said to result from the injury of the hair follicles either by circulating toxins or impaired nutrition.

At first glance it may seem that there is little connection between these varieties of baldness, yet there may be a very real connection, namely, the circulation. This view is far from being original, but it is surprising how little stress is laid upon it in the current textbooks on dermatology. Probably the most recent contribution to this aspect of baldness is a monograph by a non-medical man, G. S. MacLeod[2], who, bald himself while still a young man, determined to find out why some men become bald and others do not. After four years of reading and investigation he has published his results, which are based upon the careful measurements by means of a pantograph of over two thousand heads. His observations lead him to conclude that (1) men with smooth, oval foreheads become bald early in life, whereas men with flat foreheads, prominent supraorbital protruberances or other cranial irregularities, as a rule, escape baldness. (2) This is due to the fact that smooth oval heads receive equal pressure of the hat-band at all points and this compresses the temporal arteries and veins laterally and the large frontal vein anteriorly, thus definitey impairing the nutrition of the scap. Irregular or squarish heads receive the pressure of the hat-band at certain points only, particularly on the supra-orbital prominence, and this spares both frontal and temporal vessels from pressure. MacLeod brings out the important point which I believe has especial application to post-influenzal alopecia, that persons who lose their hair after an illness should wear hats as little as possible, and if their heads are oval so that the hat fits closely at all points, small pieces of felt padding should be inserted under the hat band just above each eye, thus removing pressure from the frontal and temporal vessels; if necessary, additional bits of padding may be inserted above each ear. This will offer the most favorable opportunity for the nutrition and regrowth of hair in a scalp which has been damaged by the poisons of a disease.

MacLeod's conclusions regarding the cause of baldness in young men accounts adequately for the well-recognized inheritance of a tendency to baldness; in other words, the inheritance of a smooth, oval head. Many writers have mentioned the influence of the hat in the causation of baldness, but so far as I know nothing has ever been said in regard to the shape of the head; some men who never become bald wear hats just as much as, or more than other men who become bald early in life. W. J. Tyson,[3] writing in the *Lancet*, 1891, emphasizes the exclusion of air by hats with sweating, as a cause of baldness. He seems to forget, however, that a person may preserve his axillary and pubic hair to a ripe old age and yet sweat profusely eighteen hours out of the twenty-four during warm weather.

Walsh,[4] in the *British Medical Journal*, attaches importance to the condition of the general circulation in the etiology of alopecia. In speaking of the diffuse fall of hair seen not infrequently after an attack of influenza, he says: "Obviously, the predisposing factor of a weakened circulation would be commonly present in post-influenzal states. In the post-febrile stages of the exanthems, when hair commonly falls, the myocardium is, in most cases, affected, and there may be, of course, temporary or permanent valvular mischief. Premature baldness commonly dates from a febrile attack in early life."

Of thirty-six consecutive cases of alopecia areata which Walsh studied, twenty-four had valvular murmurs and other evidence of cardiac disease; three showed general arterio-sclerosis; one exophthalmic goitre; one chorea with irregular heart; two irregular hearts from tea and tobacco, and one a feeble circulation; three showed no abnormal condition of the circulation.

Walsh concludes that, given the predisposing cause of impaired circulation, baldness, either diffuse or patchy, may be precipitated by various exciting causes, such as bacterial, chemical, physical, or mental, acting directly or indirectly.

Other well-recognized conditions of impaired circulation or disturbed nutrition with which alopecia is sometimes associated are surgical operations, anaemia, diabetes, cancer, tuberculosis, etc.

It cannot be said, of course, with certainty that the alopecias following the exanthems and influenza are due to a disturbance in circulation rather than to the direct influence of toxins on the hair follicles. In the case of syphilis, at least, it would seem that the alopecia which occurs some two months or more after infection is more probably due to a direct toxic action rather than to a circulatory effect. This whole matter however, would bear further investigation.

TREATMENT.

Whether the alopecia following influenza is due to toxins or circulatory disturbances, the fact remains that the best means of favoring a new growth of hair is to favor the circulation of the scalp to the best of our ability. New hairs are produced by the oxygen and other nutritive materials which are carried to the scalp by the blood stream. Lotions, ointments, massage, electricity, ultra-violet light,—whatever method is employed, the object is the same, namely, to stimulate the circulation, to produce hyperemia, to bring blood to the surface that the hair follicles may be nourished, and the epithelium stimulated to healthy growth. Some of the stimulating agents, such as resorcin, or bichloride of mercury, or electricity, may have a certain amount of direct stimulating effect upon the cells themselves, but probably by far the greater effect is by a stimulation of the circulation. It is, of course, desirable to keep the scalp clean and free from dandruff. With Walsh's view in mind, it would be desirable to examine the condition of the circulation, and if any heart damage is found, to institute cardiac hygiene. And with MacLeod's findings in mind, it would be well to warn the patient against wearing a hat more than necessary (this the patient is liable to do to cover up his baldness) and to insert paddings under the hat-bands at appropriate places, according to indications.

Massage is one of the most efficient and inexpensive means of stimulating the circulation of the scalp. This should be practised several times a day for five or ten minutes at a time.

TWENTY-FIVE CONSECUTIVE CASES.

Case (Out Patient)	Sex	Age	First Visit	Loss of Hair First Noticed	Previous Illness	Examination	Remarks
359036	F.	21	Dec. 10, 1918	2 wks. ago	Influenza and pneumonia. Time not recorded	Scalp visible through hair. Hair short	Dec. 17, hair growing in Dec. 31, hair growing in
239266	F.	20	Dec. 10, 1918	2 wks. ago	Influenza 6 wks. ago	Scalp visible through hair. Hair short	Dec. 18, hair still falling
374028	F.	25	Dec. 11, 1918	6 wks. ago	Influenza 8-9 wks. ago	Diffuse thinning on top	
374344	F.	10	Dec. 16, 1918	8 wks. ago	Influenza 8-10 wks. ago	Diffuse thinning	
374400	F.	31	Dec. 16, 1918	1 wk. ago	Influenza 4 wks. ago	Scalp easily seen through hair	
374552	F.	27	Dec. 18, 1918	2 wks. ago	Influenza 12 wks. ago	Scalp easily seen through sparse hair	
347571	M.	35	Dec. 19, 1918	8 wks. ago	Influenza 11 wks. ago	Alopecia areata; areas 1-2 in.	Jan. 19, no new hair
204752	F.	17	Dec. 20, 1918	1½ wks. ago	Influenza 12 wks. ago	General thinning	Dec. 26, no new hair
375141	F.	10	Dec. 26, 1918	1 wk. ago	Influenza, time not recorded	Diffuse thinning	
375057	F.	21	Dec. 27, 1918	2 wks. ago	Influenza and pneumonia and 7 mos. miscarriage 12 wks. ago	Severe general alopecia	Jan. 9, hair still falling
375090	F.	21	Dec. 27, 1918	2 wks. ago	Influenza 10-12 wks. ago	Fairly severe diffuse alopecia	
375063	F.	12	Dec. 27, 1918	2 wks. ago	Influenza 10 wks. ago. Sick one week	Scalp clean. Hair falls on slightest traction	
281728	F.	13	Dec. 28, 1918	During convalescence	Influenza 12 wks. ago	General thinning	
356469	F.	25	Jan. 4, 1919	Not recorded	Influenza 11-12 wks. ago	General thinning	Hair falling "for years." Much worse since influenza
375691	F.	13	Jan. 6, 1919	4 wks. ago	Influenza 14 wks. ago	Very moderate loss of hair	
375653	F.	29	Jan. 6, 1919	3 wks. ago	Influenza and pneumonia. Time not recorded	40% loss of hair	
375736	F.	35	Jan. 7, 1919	4 wks. ago	Influenza 10-12 wks. ago	60% loss of hair	
375851	F.	17	Jan. 8. 1919	4 wks. ago	Influenza 12 wks. ago	Diffuse alopecia of moderate grade	
42453	M.	39	Jan. 8, 1919	3-4 wks. ago	Influenza and pneumonia 10-12 wks. ago	60% loss of hair	
286239	M.	27	Jan. 14, 1919	1½ wks. ago	Influenza 12 wks. ago	Diffuse thinning	
376462	F.	19	Jan. 16, 1919	10 wks. ago	Influenza 13 wks. ago	General thinning. Also "nits"	
117150	F.	34	Jan. 17, 1919	2 wks. ago	Influenza 12 wks. ago	Slight general thinning	Hair had been falling with dandruff for several years. Much worse since influenza
376538	F.	22	Jan. 17, 1919	10 wks. ago	Influenza 12 wks. ago	General thinning	
326651	F.	15	Jan. 18, 1919	2 wks. ago	Influenza 8 wks. ago	General thinning. Much dandruff	Dandruff for 5 years
Private case	M.	24	Jan. 18, 1919	2 wks. ago	Influenza and pneumonia 14 wks. ago. Sick 9 wks.	General thinning. One bald spot size of twenty-five cent piece over occiput	

The head should be held down so that the blood will gravitate toward the scalp, then the whole scalp should be grasped with both hands and rolled or kneaded, not simply rubbed.

Charles J. White[5] believes that the medicinal treatment should vary according to the presence or absence of dandruff in the patient's scalp. He shares the view of a number of other prominent investigators, namely, that most cases of premature baldness are due to seborrhea or dandruff, and that this condition in turn is caused by a micro-organism, the "bottle bacillus" of Sabouraud or the micrococcus of Unna. With this in mind he deems it advisable to treat the dandruff when it complicates post-influenzal alopecia by the following means:

OINTMENT A.

℞

Sodium biborate	0.25
White wax	3.5
Sulphur	3.5
Water	7.8
Oil of rose geranium	q. s.
Liquid petrolatum	19.5

Sig:—Apply one night a week, followed in the morning by a shampoo.

WASH A.

℞

Mercuric chloride	0.25
Euresol procapillis (Bilhuber)	8
Spts. formic acid	30
Castor oil	0—8
Alcohol ad	240

Apply 3 mornings a week. To be used in conjunction with Ointment A.

If the scalp is not inflamed, and if there is no dandruff to speak of, the following lotion is very useful as a rubifacient with possibly some direct stimulating effect on the hair due to the pilocarpine and quinine.

WASH B.

℞

Pilocarpine nitrate	0.06
Quinine sulphate	0.6
Tr. cantharides	12
Tr. capsicum	12
Alcohol ad	240

Apply 3 mornings a week.

Personally, I cannot agree that all cases of dandruff are due to a superficial infection of the hair follicles, nor that the majority of cases of premature alopecia are traceable to that cause. As we all know, the epidermis over the entire body is in a state of continual physiological exfoliation. Clean people bathe daily or on alternate days, hence wash away these scales faster than they can accumulate, and what is not washed away is rubbed away by the clothing. In the scalp it is different. We wash our heads once in one, two, or three weeks. Is it any wonder that the normal exfoliating scales accumulate, enmeshed as they are by the hair? Of course, a scalp which is excessively itchy, red, and inflamed, and covered with scales is pathological and undoubtedly the seat of an infection, but this is not the picture of the average scalp with slight dandruff.

W. H. Dieffenbach[6] and many others claim excellent results in the treatment of alopecia by use of ultra-violet light.

PROGNOSIS.

Complete regrowth usually takes place gradually after most febrile disorders. On the other hand, more or less alopecia may remain permanently. This may be due to impaired general circulation, according to Walsh, or to impaired local circulation from a snugly fitting hat in a scalp already weakened by disease, according to MacLeod. Possibly either or both or still other factors operate.

SUMMARY.

1. Alopecia is a not infrequent sequela of influenza, occurring commonly about two or three months after the onset of the influenza, but occasionally during convalescence.
2. The alopecia is usually of the diffuse type, although in one of the hospital cases and one private case the lesions were patchy, and, without a history of influenza, might have been diagnozed alopecia areata.
3. Most of the cases which have come to our notice have been females, twenty-one of the twenty-five consecutive cases.
4. All of the twenty-five patients are under thirty-six years of age.
5. The ultimate aim in treatment is to promote a healthy circulation in the scalp. This is attained most easily by massage, with the head lowered; by avoidance of obstruction to the main vessels of supply to the scalp by padding the hat band at appropriate points; by stimulating lotions; by keeping the scalp clean.
6. For statistical purposes it is desirable that cases be recorded and that the condition of the circulation be examined with *especial reference to heart lesions.*

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FOCAL INFECTION AND ITS RELATION TO TOXAEMIA OF PREGNANCY WITH OR WITHOUT CONVULSIONS.*

BY JOHN E. TALBOT, M.D., WORCESTER, MASS.

It has been my earnest desire in writing the paper which I am about to read to you to enlist sufficient interest so that others will take up the investigation which has interested me for the past two years.

That there is a relationship between focal infection and the incidence of toxaemia of pregnancy with or without convulsions, I am absolutely convinced. Whether the theory which I have evolved is the explanation of the cause and effects of this relationship can be determined only by the accumulation of evidence found by others, backed by more precise laboratory tests.

It is my intention, therefore, first to give you a summary of the theory, then to cite certain cases to show the clinical evidence of this relationship and then to emphasize some of the difficulties which will be met in carrying out an investigation.

The theory of which I am about to give you a summary is more fully dealt with in an article published in the February number of *Surgery, Gynecology, and Obstetrics.*

These are the main points of the theory. In normal life the physiological metabolic waste products of the system are more or less constant in amount. This supply of waste products makes a more or less constant demand upon the kidney excretory function.

During the development of a normal pregnancy there is a gradually increasing quantity of physiological metabolic waste products which have to be excreted by the kidneys, and this gradual increase in the total quantity of these waste products makes a gradually increasing demand upon the excretory function of the kidneys.

The kidneys as organs of excretion are concerned only with the percentage of concentration of waste products in the blood. In other words, the reserve power of the kidneys is represented by their ability to excrete waste products in abnormal concentration in the blood.

The increase in waste products resulting from the developing pregnancy taxes in progressively increasing degrees that functional reserve power of the kidneys.

It is important to note that there is no other condition in nature which makes so heavy a demand on the reserve power of the kidneys.

Nature has provided in a normal individual a sufficient kidney reserve power to take care of a normal pregnancy in order to perpetuate the organism of man.

These normal physiological waste products are injurious to the system if retained. Anuria, if continued long enough, results in death. It is therefore reasonable to assume that, if these waste products are injurious in strong concentrations, they are also injurious in lesser concentrations.

In chronic nephritis we know that the kidneys' functional power is decreased, that is to say, their reserve power is not as great as in normal kidneys.

This reduction in reserve power is brought about in chronic nephritis by two factors. First, there is an actual destruction of kidney tissue, thus reducing the amount of excretory surface in the kidneys; and second, there is a reduction of the functional power of the kidneys, represented by their ability to excrete waste products in abnormal concentration. To my mind, the full appreciation of this distinction between the loss of excretory power due to the actual destruction of kidney tissue and the loss of power due to disturbed functional power of that tissue which remains is essential.

It is admitted by all that there is a marked increase in the incidence of toxaemia of pregnancy and eclampsia when pregnancy is superimposed upon an already existing chronic nephritis.

This fact suggests strongly that the incidence of toxaemia is intimately connected with the excretory processes of the body. This point of view is also strongly supported by what may be called the therapeutic test. No one can deny that by stimulating the excretory processes of the body many cases of toxaemia and eclampsia are benefited thereby.

We are necessarily drawn to the conclusion that there is something in the blood stream causing the symptoms of toxaemia of pregnancy and eclampsia when returned in the system, and that these symptoms are abated when sufficient amount of this something (better termed a poison) has been eliminated.

We are also drawn inevitably to the conclusion that this poison has intimate connection with the developing pregnancy, for when we in terrupt the pregnancy we almost always get an immediate abatement of symptoms.

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* Read before the Obstetrical Society of Boston.

I have tried to show that the by-products of a normally developing pregnancy are injurious if retained within the system.

I therefore advance the theory that it is the retention of these normal waste products of the developing pregnancy which are the immediate cause of the syndrome of symptoms known as toxaemia of pregnancy with or without convulsions. I believe there is good support for this statement.

It can be safely stated that there are no symptoms of chronic nephritis which do not occur in toxaemia of pregnancy and eclampsia. The great similarity of these symptoms is so striking that it suggests a common cause.

If we assume that the symptoms of chronic nephritis are due to retained physiological waste products, this similarity can be explained.

In the one case the supply of waste products is a constant, and it is only after years of slow injury to the excretory function of the kidneys that there is a retention sufficient to bring about convulsions and death.

In the other case the supply of waste products is not a constant but a gradually rising tide which overwhelms the kidney reserve power and there is likewise retention sufficient to cause convulsions and death.

Why should this poison not be excreted? It is undoubtedly true that the great majority of cases, showing toxic symptoms in pregnancy, show no previous kidney insufficiency. It is necessary, therefore, to look further to find a cause for the retention of this poison.

It is a well-known fact that the toxins of a severe acute infection cause a temporary acute nephritis as evidenced by albumin, blood, leucocytes, and casts in the urine. It is also characteristic of this type of urine to be small in amount. This tends to show that the functional power of the kidneys is inhibited or partially reduced by these toxins resulting from bacterial growth. If these toxins can cause this damage when in strong concentration in the blood, it is reasonable to assume that these same toxins must be injurious to the kidney function when in lesser concentration in the blood.

If, therefore, we find that chronic sepsis is coincident with the incidence of toxaemia of pregnancy, we have an explanation of why the poison which causes the symptoms is retained in the system.

In the series of 97 cases of toxaemia of pregnancy and eclampsia reported in my paper, I found chronic sepsis present in the teeth in every case without a single exception.

In my subsequent series I have not an unbroken record, but in these cases I have not had full opportunity to investigate the situation.

There is one great objection to the truth of this theory which arises in everyone's mind almost immediately, and that is that this coincidence in my series between focal infection and toxaemia of pregnancy is due to the great prevalence of focal infection. I admit that this objection is a very real obstacle in obtaining an acceptance of the theory, but my answer is this. It is a fairly well accepted principle of medicine that infectious arthritis is caused by foci of infection in the teeth or tonsils, and yet everyone with foci of sepsis does not have infectious arthritis. Why should more be asked of one theory than another?

The rejoinder to this is also apparent. In infectious arthritis we are generally dealing with a specific bacterium.

My answer has no laboratory basis as yet, but I am of the opinion that when the truth is known, we may find that here again we are dealing with a specific bacterium.

I regret that there is not time to go into details and show you how successfully the many manifestations of toxaemia of pregnancy and eclampsia, both clinical and pathological, can be explained by this theory. I regret also that I can only hint at the importance of the relation of focal infection to many other complications of pregnancy. That many cases of breast abscess and pyelitis can be attributed to this cause as well as macerated fetus and some affections of the newborn is more than probable.

There is clinical evidence that there is a relationship between focal infection and the onset of symptoms of toxaemia of pregnancy. Among the more striking cases in my list are these:

Patient, a multipara, due August 10. Urine examination on July 31 showed trace of albumin, sediment negative. When I called, I found that she had no complaints but showed puffiness above the eyes and slightly swollen hands. Blood pressure, 140 systolic; diastolic, 110.

It has been my custom to make my inquiries as carefully as possible in order not to lead the patient, so I asked her if, since my last visit, she had had any discomforts such as aches or pains. In response she told me that four days ago she had a severe attack of left facial neuralgia. I had never looked in her mouth before, but was not surprised to find on the left upper jaw a pivot tooth. This case went to the hospital and remained under eliminative treatment until the child was born on August 20, the blood pressure going as high as 155-110 and remaining above 140-110 continuously.

The onset of labor began with a complete faint and labor was very intense while it lasted, which was less than two hours. She gave birth to a stillborn child which had been active within a few hours of labor. A large clot of dark blood coming away with the placenta gave me the diagnosis of partial premature separation of the placenta.

As soon as she was strong enough she had the pivot tooth x-rayed by one of the most prominent dentists in this city (Boston), who told her that there was something there, but as long as it did not cause her any more trouble than it had, he believed in letting it alone.

Another case, a multipara, brought to Memorial Hospital by a very able general practitioner because the patient sent for him on account of severe headache, and he had found a lot of albumin in her urine. She was full-term and on her arrival at the hospital had started labor. She had not been there long when she had a convulsion, followed by three more, at which time I delivered her by low forceps.

During the waiting process, the doctor who had come in with her made the remark that he wondered if the cause of eclampsia would ever be found. I answered that I thought that I had found it and that it had a relation to focal infection, especially in the teeth. His answer was, "That's funny, this patient called me up a week ago because she was having a very severe toothache!"

X-Rays were taken in due time and several bad abscesses were revealed at the roots of her teeth.

Another case, who is now almost at the end of the eighth month of her second pregnancy. I did not have charge of her during her first pregnancy, but this is her history.

Some months before she became pregnant for the first time, she developed a discharging sinus just below the symphysis of the lower jaw, which persistently discharged pus in spite of all local treatments. This continued until she was about six months pregnant, when it ceased to discharge. One month later she had eclampsia and delivered herself of a stillborn child. About three months after the birth, the sinus began discharging again. Her brother, who is a medical student, advised her to have the three molars on both sides of the lower jaw, which were very carious, removed. She did this and the sinus healed almost immediately and has never drained since.

She came to me at the beginning of the fourth month of her second pregnancy and had a blood pressure of 140-100. Urine negative. At four and a half months she reported with headache, specks before the eyes, and marked edema of the legs. She had a gold crown in the upper jaw with inflammed gums. We had an x-ray taken, found pus, had the tooth extracted. Her blood pressure, which had risen to 155-110, dropped to 145-90, the symptoms entirely disappeared and the patient states at each visit now that she never felt so well.

The case of Mrs. E., reported in full in my paper in *Surgery, Gynecology, and Obstetrics*, is the first case which drew my attention to a possible relationship. In that case she had a severe attack of neuritic pain in her right arm and shoulder just before her blood pressure began to rise.

Of course every theory dependent upon the sequence of clinical observations is subject to question whether this sequence is not a mere coincidence. However, I could give you many other instances of this sequence and my experiences have convinced me that this sequence is of great importance.

It is important to note, however, that there are many cases which do not show any symptoms which could signify any increased activity in the focus of infection. This statement raises another very important point.

The absence of local symptoms in the teeth and tonsils cannot be depended upon to rule out the presence of a local pocket of pus. It does not matter how good the dentist is, your guess is just as good as his, from external inspection. It is always a question of x-ray examination and I am sorry to say that even then there is a very wide margin of error.

My experiences reported in the case of Mrs. Pa., already reported in my paper, show some of the difficulties with the x-ray expert. In that case he did not x-ray all of the teeth because they "looked good." He did find pus at the bottom of one molar, but I had to insist in order to get it pulled. His report, after pulling it, was that there was not much the matter with it, but the patient told me that she could hardly breathe because the odor was so foul.

The difficulties in getting the treatment carried out are small, however, to the difficulties in locating the focus of infection.

When you find that a negative report is given you, based upon pictures which do not even show the ends of the roots of the teeth where the abscess is most likely to be, it is then that I can see where other investigators will go ababsolutely wrong. A man who will do this could not be depended upon to take two views of the same tooth for fear that one root might hide an abscess on another root.

It is necessary in these x-rays to be able to follow the peridental membrane throughout and, if this does not show on the first film, it is necessary to take them until it can be traced.

A case in point will demonstrate. This case came to me complaining that she felt very tired all the time, was nervous and irritable, and that it seemed as though she could not get out of bed in the morning, although she slept fairly well. I found a blood pressure at 145-100. Physical examination was negative except that she was obese and she had a marked puffiness above the eyes. Inspection of her teeth was negative. However, on the strength of the raised blood pressure and puffiness over the eyes, I recommended x-rays of her teeth. The report was negative.

I saw the x-rays, which were not clear, and made a mental reservation in the case, although it seemed as though I was wrong. I gave the patient a tonic and waited.

Three months later I was called by the patient because of severe left-sided facial neuralgia. It was not easy to do, but this time I persuaded her to go to another x-ray expert and have another set of x-rays. This time the dentist found an abscess, opened it before she left the office, and sent her home relieved.

Another case is of interest in this search for pus. This patient had had several attacks of inflammatory rheumatism as a young girl, and approximately ten and five years ago had had tonsillectomies. She came to me to take care of her through her first pregnancy. In the last two weeks of her pregnancy she developed toxic symptoms, with albumin and blood pressure of 170-120. She had some hydramnios and a small, deformed child.

In a month from delivery her urine and blood pressure were normal. In another month she had a severe sore throat resembling quinsy. A throat specialist removed tonsillar tissue for the third time and with it two large pockets of pus. Within the past week she has had x-rays of a suspicious tooth, and pus was found.

These cases show plainly the difficulties to be met in the search to establish the presence of a focus of infection. By holding the attitude that toxaemia of pregnancy is a symptom of the presence of pus somewhere, I have been able to demonstrate it in those cases which have permitted this sort of exhaustive investigation.

Before closing this subject, I should like to speak of certain symptoms which I believe are aids in the search for pus.

You will undoubtedly agree with me when I say that toxic cases of pregnancy present a more or less characteristic appearance around the eyes, especially a puffiness just above the eyes. It is not always present but is very frequently present. It has been my experience that this sign is of some value as a sign of the presence of a focus of infection. It is not infallible, but it has been very useful. I have carried its use into general practice and find that it stands the test there as well as in pregnancy.

The most important leaders, however, are to be found in what I shall broadly term the major and minor neuritic symptoms. Among the major neuritic symptoms are facial neuralgia, one-sided headaches, neuritic pains in the arms or neck. Roughly speaking, the headaches due to high blood pressure or those suggestive of impending convulsions are those which occur throughout the head or in the occipital region. Unilateral headaches, I believe, signify a neuritic pain due to the activity of the toxins of sepsis.

Among the minor neuritic symptoms I have placed numbness of the hands or feet, generally accompanied by prickling sensations. Inability to go to sleep, which is frequently associated with prickling or stinging sensations in the arms, legs, or body.

I do not wish to be understood that these neuritic symptoms are consistently present, but I do believe that when present they generally signify an activity in a pus pocket somewhere in the system.

Just as the symptoms of toxaemia give us warning of impending convulsions, I believe these neuritic symptoms are warnings of impending toxaemia.

It has been a source of much regret to me that I have not been able both to search the literature on this subject and to start an investigation of my own to establish the points of this theory. Insufficient time and lack of proper laboratory facilities occasioned by the war have prevented me.

I have noted, however, a few reports from the work of other men which are consistent with the theory.

Mosher, in an article reported in the December number of the *American Journal of Obstetrics*, calls attention to the frequent association of focal infection with toxaemia of pregnancy.

Warnekros found 18 positive blood cultures out of 25 taken in cases of toxaemia of pregnancy.

DeLee expressed his belief in the probability of an infectious basis for toxaemia of pregnancy.

Mosher quotes LaVake as stating that in every case of eclampsia a focus of infection can be demonstrated.

Besides these reports of purely obstetrical nature are articles which state that arterial hypertension can be lowered by eradicating foci of infection; and last, but not least, that albuminuria can likewise be cured.

All these articles tend to show that the relationship between focal infection and toxaemia of pregnancy is more than probable.

If this relationship can be established, the dental profession will hold a place in the child conservation movement and in prophylactic medicine unequalled by any other branch of medicine.

In closing let me say a word in regard to the theory which I have advanced that it is the retained metabolic waste products which cause the symptoms of toxaemia of pregnancy and eclampsia.

It has been well established that in chronic nephritis there is retained nitrogen in the blood in varying amounts, according to the seriousness of the disease. I believe that it is this retained nitrogen which represents the retained metabolic waste products. There is good reason to believe from work already started that there is likewise retained nitrogen in the blood of toxic and eclamptic patients. If this point is finally established, I believe that the amount of retained nitrogen in the blood will give us our best test as to the amount of toxaemia present in a given case.

NOTES ON TREATMENT OF LOW BACK STRAINS.

BY HERMAN W. MARSHALL, M.D., BOSTON.

STRAINS of muscles and ligaments in lumbar, lumbo-sacral, and sacro-iliac regions of the spine are relieved now more or less successfully by well-known protective methods, including adhesive straps, webbing belts, orthopedic braces, jackets and plaster-of-Paris casts, depending on exact sites and severity of strains.

Correct general principles of treatment consist in protecting weakened structures exactly the right amount in exactly the right way, and in limbering them up after periods of rest by means of methods such as massage, passive motions, graduated exercises and various physical therapeutic means.

Success in results attained depend largely on particular lengths of times therapeutic measures are prescribed, on degrees of protection afforded, and the manner with which rest, exercises, and physical therapeutic agents are combined or alternated in beneficial physiologic ways; because identically the same kind of treatments may be prescribed skilfully in one instance or unskilfully in the next case, according how each is given to each patient.

One special modification used in protecting weakened sacro-iliac ligaments will be described in this paper.

It is universally known now that strips of adhesive tape applied across the back of the pelvis tightly will partly or wholly relieve strained sacro-iliac ligaments for a short time. It has also been proved by practical experience that adhesive strips stretch and also irritate the skin frequently to such a degree that their continued use becomes impossible.

Canvas belts or firm webbing belts therefore usually are substituted for adhesive strappings among patients with chronic back strains. Webbing and canvas have the limitations that they chafe the skin in time and also become stretched. Patients wear them so loosely that, often, after a few weeks, their effectiveness is largely lost.

Extremely slight degrees of ligamentous stretching take place in most cases of sacro-iliac strain, and therefore, it is the last few degrees of tightness in any encircling belt that are the most efficient ones for holding ligaments; similarly as the last few degrees of tightness in steel hoops around a barrel determine largely the efficiency of the hoops.

The question arises naturally why flexible, adjustable steel ribbons should not be used as belts for patients. They do not stretch as much as adhesive, webbing, or leather, and they are strong enough to permit greater narrowness, which in certain locations allows less chafing. When they are comfortably padded they can be worn continuously more tightly than other kinds of belts and, owing to their inelasticity, are more efficient than any of the other devices; though of course unlimited amounts of pressure cannot be borne by the soft tissues of the body to the same degree as by solid wooden staves of a barrel.

Certain practical obstacles arise, however, in use of flexible steel bands. It is found that any thin steel tape of uniform width and parallel straight edges will not lie smoothly with an even pressure everywhere against the skin, even though it twists and rolls around the body easily. Such a steel ribbon instead will cut into the flesh along its edges at certain points, while at other points its edges will push away from the skin.

This difficulty is overcome by fashioning the ribbon from a sheet of thin steel, cut according to a carefully made pattern. The properly fitted ribbon when lying perfectly flat has curved edges instead of straight lines, one edge is longer than the other and irregularities exist in each edge to meet special requirements of satisfactory fitting. But these obstacles can be overcome by experience and it is possible to make sacro-iliac straps reasonably cheap as well as very efficient.

Simple though this variation is, yet it is a modification of far-reaching practical importance, because by steel tapes of this kind many extremely chronic cases of sacro-iliac relaxations can be relieved that cannot be held firmly enough with other forms of belts.

It is of interest to record that it required the united attention and coöperation of apparatus maker and practitioner to think of and to appreciate the value of this simple device; and the writer is indebted to Mr. William Kraus of Boston, for his valuable suggestions and practical experience.

The other special topic for discussion in this paper relates to use of plaster-of-Paris jackets and removable rigid braces in treatment of back strains.

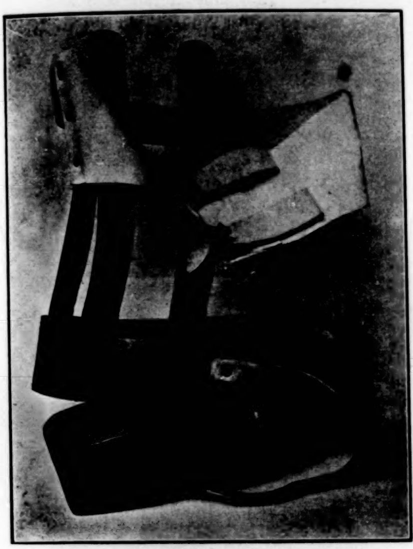
Plaster-of-Paris jackets are best for immobilization, of fractured or diseased bones of the spine, because continuous and as complete protection as possible is most important in these cases. Muscles and ligaments atrophy and weaken, if they are held long in jackets, yet the benefit to serious osseous lesions overbalance temporary damage done to the tissues which bind together and move the bones.

The situation is different, however, when musculo- ligamentous strains without serious bony or synovial involvements are being dealt with. Indications for treatment, then, are alternations of protective and stimulative measures, not immobilization alone continuously for a long time, nor too much exercise, massage, or other locally stimulating physical therapeutic method alone.

Too long immobilization, while it may afford comfort for the time, generally means long, disagreeable limbering-up processes after removal of plaster casts; and the change from long protection to uncomfortable manipulations, massage, and exercises subsequently is not appreciated by patients who are inclined to prolong their disability periods by extremely gradual return to full activity.

Early massage and gentle manipulations are indicated in nearly all simple musculo-ligamentous strains as urgently as with strains and traumatic myositis which accompany fractures in the extremities.

Most strained backs should be protected continuously at the most only for a few days at a time, and therefore properly fitted leather and steel braces are preferable, because they permit removals easily for baking, massage, and manipulations at regular intervals. They are preferable to use of split plaster casts for protection in all cases except those of very short duration, because they are more efficient than the latter. Steel braces justify, therefore, the additional expense of their manufacture in cases of moderate or extremely long duration.



The illustration is a photograph of a support provided with flexible steel pelvic band which can be adjusted by a short length of leather strapping. This particular piece of apparatus was designed to restrict lateral motions of the trunk at the lumbo-sacral juncture as well as to hold sacro-iliac joints, and it is provided with upright steel pieces attached to the firmly seated flexible pelvic base. The leather padding is widened in front to support the abdomen when desired. It combines features of accuracy of fitting, comfort, and ease of removal, which make it superior to plaster jackets for the majority of chronic low back strains.

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PNEUMONIA AND EMPYEMA.

By First Lieut. Horace Gray, Medical Corps, U. S. Army.

[From Medical Service, Base Hospital, Camp Devens, Mass.]

(*Concluded from page 451.*)

46. The Stay in Hospital may best be studied in a review of our first six months series, admitted from the opening of the hospital through March 31. There were 241, including thirty patients still here on May 31, two months after the admission of the last case in that series. The average stay was 40 days; this was partly due to a small number of long stayers, but this inconvenient fact cannot be omitted. Those with empyema averaged sixty days, vs. thirty-five for those without. If we consider only the completed cases (*i.e.*, dead, S.C.D.'d. or sent to duty), those dying of empyema were in hospital eighteen days *vs.* eight for those dying without empyema; and those with empyema now well (*i.e.*, free from symptoms and out of hospital) averaged 92 days *vs.* 32 for straight pneumonias, now well. The last figure is worth emphasis: the mildest group (the well pneumonias without empyema) averaged more than a month in the hospital.

In this last group, the long stay was deliberate, due to our belief in the importance of a longer convalescent period than that currently considered adequate. This point will be re-emphasized in the next paragraph. This intentional retention or safeguarding, accounts to a considerable degree for the high non-effective rate from pneumonia, which was (*cf.* par. 4) fourteen per one thousand of the men in this camp: or from another viewpoint, was the cause of nearly half the days of work lost to the government by all diseases. Obviously the convalescent stay can be cut, but wisely so only since the introduction of "convalescent wards" and "Developmental Battalions."

Table XXVII. Stay in Hospital.

	No. Cases					
	Without empyema.			With empyema.		
Weeks	Well.	In hosp.	Dead.	Well.	In hosp.	Dead.
Less than 1	4	0	6	0	0	7
1—2	21	0	5	0	0	6
2—3	27	0	0	0	0	4
3—4	25	0	0	0	0	3
4—5	28	0	0	0	0	1
5—6	14	0	0	1	0	0
6—7	18	0	0	1	0	0
7—8	11	0	0	0	0	1
8—9	7	1	0	0	3	1
9—10	1	3	0	0	2	1
10—11	6	2	0	2	3	0
11—12	0	2	0	0	0	0
12—13	1	1	0	0	2	0
13—14	0	0	0	2	0	0
14—15	0	1	0	1	1	0
15—16	0	2	0	3	1	0
16—17	0	1	0	0	2	0
17—8	0	0	0	1	1	0
18—19	0	0	0	1	0	0
19—20	0	0	0	0	2	0
20—21	1	0	0	0	0	0
Totals	164	13	11	12	17	24
Av. No. days in hosp.	32	85	8	92	91	18
Av. No. days in hosp.						
Av. No. days in hosp.			40			

47. Return to Duty even in the mildest group mentioned above can seldom be immediate. Most of the convalescents as soon as ambulatory have been transferred to other medical wards and kept on light work about the ward for a week or more; then if free from symptoms, the heart has been fluoroscoped and the patient sent to quarters with the following note to the Regimental Surgeon:

Base Hospital, Camp Devens, Mass.
..........................1918.

From: Chief of Medical Service.
To: The Surgeon.
Subject: X-Ray of heart.

1. ....was recently in bed with......................pneumonia.

2. A certain number of such patients have shown undoubted myocardial weakness on duty, though no physical signs while in the hospital, other than cardiac dilatation by fluoroscopic examination.

3. It is desired that this man report to the X-Ray Room weekly for a while, beginning about........... between 2 and 4 P.M., preferably at 2.30 P.M.

4. He will not be detained longer than one hour.

5. Please have him bring this letter with him.

6. It is requested that he be not returned to duty until notification is received from the Base Hospital, that he is physically fit. This arrangement was made at a meeting of the Division Surgeon with the Regimental Surgeons at the Base Hospital.

....
Major, M.R.C.

About four days after leaving hospital the patient has returned to the radiologist and been again fluoroscoped. If the heart shadow was approximately normal and if no marked complaint was made, he was told that he need not return and to report the fact to the Regimental Surgeon. If the radiologist was in doubt he gave the man a slip to return in a week.

This procedure has at last been replaced, except in cases likely to show distinct radiographic abnormalities, by graded military exercises under supervision of a medical officer in a special convalescent ward from which the patients go direct to duty. When results from these convalescent classes shall have occurred, the support of more figures can be definitely given to Lt. Col. L. C. Duncan's radical conclusion ("Measles and Pneumonia in Camp Wheeler," *Military Surgeon*, Feb., 1918, XLII, p. 132) that "from two to three months are lost by each patient." Too many people feel that a pneumonia patient is cured by the crisis. Too few appreciate that after pneumonia, just as after typhoid, a considerable period is necessary even for a patient in apparently good condition.

RECAPITULATION.

While the figures speak for themselves, their mass is so confusing that concentration may be permited to those conclusions which seem worth keeping in mind:

1. *Period:* 35 weeks.

2. *Cases considered* (infection with pneumococcus or streptococcus or both): 485.

3. *Of total non-effective* rate 45% was due to pneumonia.

4. *Pneumonia mortality* was only 13%.

5. *Empyema incidence* was 16% of 485 pneumonias.

6. *Empyema mortality* was 44%.

7. *Operated* empyemas had a mortality of only 21%.

8. *Measles* was the cause of only 8% of the 485 pneumonias; but when it was, the pneumonia was nearly three times as fatal as when primary.

9. *Negroes* had a vastly higher case rate than the whites, but their mortality was only a little higher. The lobar variety was present in 94% of them, vs. 74% of the white cases.

10. *Kinds of pneumonia:* (*a*) 88% primary, 8% post-measles, and 4% post-ether. (*b*) 79% lobar, 21% broncho.

11. *Onset* was distinctly abrupt in only one-third of the cases.

12. *Diagnosis of pneumonia* was not *made* on the average till the fourth day of the disease.

13. *Earlier diagnosis* might in future be made by persistence in the following:

(*1*) We should watch all "common colds" (minor upper naso-pharyngeal infections), measles and post-ethers, for a rise in respirations. If these should reach 24, we should class the patient as a "pneumonia suspect": and a "probable pneumonia" if it reaches 25 (the average admission respiratory rate among 241 pneumonias).

(*2*) For any suspect we should:

(*a*) Inquire daily for unilateral chest pain.

(*b*) Auscult daily the chest, front and back, especially at the angle of each scapula, listening particularly for râles after the "stifled cough" (Moore), and (if bronchitis be present) for bronchovesicular breathing (comparing the two sides); and in absence of that sign listening for whispered pectoriloquy on one side or the other.

(c) Secure x-ray.

(d) Secure sputum early. Now that the simpler Krumwiede method is available, typing should be attempted even before consolidation is detected.

(3) We should request the Camp Surgeon to issue a circular letter to all the medical officers in his jurisdiction, directing their attention to:

(a) The importance of a temperature, and respiration as well, taken on all men complaining of pain in the chest or belly, perhaps even if there be no associated cough.

(b) The low mortality (8%) of pneumonias when typed and treated.

(c) The high mortality of pneumonias when ambulant.

(d) The desirability of referring men to the hospital for "observation for pneumonia" on slight suspicion.

14. *Bacteriology* had taught us that even more fatal than pneumococcus is its mixture with the hemolytic streptococcus, and most fatal is the streptococcus alone. This latter alone caused 53% of the empyemas.

15. The main complication beside "the severe symptom" of empyema, has been *renal*, which was present in more than half the pneumonias. A renal test on discharge should be routine.

16. We could *diagnose effusion earlier* by suspecting *every* pneumonia guilty unless proven innocent, and that too *even on the second day* of the disease. We should listen daily for muffling of breath sounds; but *even if they remain clear* we should feel uneasy if they become "rasping" (Hamburger), if unilateral dulness extends, or if prostration is present. Any of these three reasons is adequate for sticking in a needle on a syringe perhaps every third day. Any drop of fluid obtained should be sent to the laboratory expert for smear and culture, and if there is enough fluid for a white count.

17. *Graded military exercises* over a considerable period should be an essential part of the attempt to shorten convalescence and return the man to duty.

[This study was suggested by the chief of the medical service, Major (now Lt.-Col.) Elliott P. Joslin, M.C., and greatly aided by his advice.]

Book Reviews.

Treasury Department. United States Public Health Service Hygienic Laboratory-Bulletin No. 112.

The United States Public Health Service in its April, 1918, bulletin publishes the following papers:

I. Phenols as Preservatives of Antipneumococci Serum. A pharmacological story. By Carl Voegtlin.

II. The Nature of Contaminations of Biological Products. By I. A. Bengston.

III. Studies in Preservatives of Biological Products. The Effects of Certain Substances on Organisms Found in Biological Products. By M. H. Neill.

IV. The Effect of Ether on Tetanus Spores and on Certain other Micro-organisms. By H. B. Corbitt.

The purpose of paper number one is to report a number of pharmacological experiments which were made in order to determine the suitability of trikresol and phenol as preservatives for antipneumococci serum. Inasmuch as phenols are fairly toxic substances, it is important to determine whether or not the amount of phenol administered with the antipneumococci serum may give rise to any undesirable symptoms and if this be the case, how are these symptoms to be avoided. Experiments on monkeys, dogs and cats are discussed at length in this paper and tracings indicating the effect on blood pressure are shown. The conclusions drawn on the basis of observations recorded are that intravenous injection of antipneumococci serum should be made at a very slow rate.

Paper number two is a study of organisms isolated as contaminations in biological products during the period from November, 1914, to January, 1917, including representatives of the following groups: Coccae (Staphylococci, Streptococci), spore-bearing rods (aerobic), spore-bearing rods (anaerobic), and non-spore-bearing-rods, including coccoid bacilli. Aerobic spore-bearing rods were most often isolated, though Staphylococci were also frequently encountered.

Paper number three reports several experiments and gives carefully compiled tables indicating the results. These experiments emphasize the necessity of scrupulous care in the preparation and handling of biological products and demonstrate the fact that the use of preservatives does not insure the sterility of the finished products.

Paper number four is a record of the experiments undertaken in an effort to determine a method whereby any spores of tetanus which may have gained access to vaccine virus could be killed.

Surgery of the Spine and Spinal Cord. By CHARLES H. FRAZIER, M.D., Sc.D., Professor of Clinical Surgery and Surgeon to Hospital of University of Pennsylvania, Philadelphia; with the collaboration of ALFRED REGINALD ALLEN, M.D., Associate in Neurology, Neuropathology, University of Pennsylvania, Philadelphia. With Six Colored Plates, Two Charts and Three Tundred and Seventy-eight Illustrations in Text. New York and London: D. Appleton and Company. 1918.

This is one of those rare books of which it is unnecessary to ask, why was it written? The reasons why are obvious: First, because there is ample room for a new book upon surgery of the spine; second, because the author, as a result of study, work, experiment, and experience has much to tell; he has taken time and pains to present and illustrate his facts in a logical and intelligent fashion; and finally because he is one of a not too large group of American medical men who has respect and affection for the English language, its proper use and its possibilities, even though he writes of technical matters alone.

Of 900 pages in this volume, Dr. Frazier contributes about 650; the remaining 250, a little less than one-third, consist of four monographs: one by Dr. George A. Piersol on the "Anatomy of the Spine and Spinal Cord"; the second by Dr. Alfred Reginald Allen on "Normal and Pathological Physiology of the Spinal Cord"; the third by Dr. John A. Kolmer on "The Cerebrospinal Fluid and Its Relation to Spinal Diseases," and the final by Dr. Henry Pancoast on "The Roentgen Examination of the Spine." The chapters by Dr. Frazier cover the subjects of "Malformations," "Trauma," "Tumors," "Infections," and the technique of "Surgical Procedures."

At the end of each of the fourteen chapters is a bibliography, which seems to cover all important contributions of the past twenty years on the subject covered. This is an excellent arrangement, and one far more desirable than the usual custom of grouping all references to the literature at the end of the volume.

The volume is, therefore, complete. At first sight it seems a big book; the type is large and very sharp, the spacing and margin generous, the illustrations numerous. In relation to the pictures, it is proper to comment upon the fact that the author has avoided the almost universal error of reducing the size of the cuts to one-half, or, as often happens, one-quarter of its original dimension; he has kept many of them, practically all of his very excellent pictures of operative attack, life size and usually full page: this is a matter of much importance, but rarely met in this proper fashion. Furthermore, he has shown that it is possible to print clear and sharp pictures without the slightest blurring on flat unglossed paper: from the reader's standpoint, this is a matter of definite importance.

Dr. Frazier discusses the various divisions of his subject clearly and at much length; his viewpoint is that of the man who has had an early experience in general surgery, obviously a matter of much importance in dealing with such a subject as this; his descriptions of operations are complete without being verbose; after-treatment is adequately covered; prognosis and the limits of operative therapeusis fairly stated.

We recommend the book very strongly to all surgeons.

Forced Movements, Tropism and Animal Conduct. By JACQUES LOEB, M.D., PH.D. SC.D. Philadelphia and London: J. B. Lippincott Company. 1918.

This volume is the first of a series of monographs covering the whole field of biology as viewed from the quantitative basis of experimentation. The author shows by many experiments that the movements of the animal and the plant are entirely dependent upon "tropisms." Symmetry relations are the starting point for the theory of animal conduct. When an electric current is passed through the animal, orientation takes place in the direction of the anode or the cathode, depending upon the organism used. In the same way, the migrations of animals and plants to and from a source of light, is of the nature of a forced movement determined by the effect of light on the photosensitive elements of the body. The author also shows that the Bunsen-Roscoe Theory is true for heliotropic reactions, which are influenced by wave lengths of light and by the addition of various reagents. Geotropism is explained by the laws of mass action, which also explains rate of growth and chemotropism. This explanation is substituted for the "trial and error" method of the psychologists. In conclusion, the author shows that instincts and freedom of the will are manifestations of tropisms. The book is an interesting and logical presentation in defense of the mechanistic theory of animal conduct.

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TERMINATION OF WAR ACTIVITIES OF THE GENERAL MEDICAL BOARD AND ITS COMMITTEES.

In view of the termination of the war activities of the General Medical Board and Medical Section of the Council of National Defense, Secretary of War Newton D. Baker, who, as chairman of the Council, appointed the members of the General Medical Board, has written a personal letter to each of the seventy-five prominent physicians and surgeons comprising the Board, expressing appreciation for their services and thanking them on behalf of the government. Dr. Franklin Martin, chairman of the General Medical Board, has also written, thanking the members of the State and County committees, which for two years have worked under the direction of the Board.

"In terminating the relations between these organizations and the officials with whom they coöperated and worked so effectively," said Dr. Martin, "while one cannot complain that the war is over, yet a feeling of regret must inevitably arise at the severing of such close connections engendered by the friendship and comradeship that are the natural outgrowths of such important associations."

Secretary Baker's letter is as follows:—

"War Department, Washington.

Dr. Franklin Martin advises me that the work of the General Medical Board of the Advisory Commission of the Council of National Defense is now nearing completion and that the board will be dissolved on April 1st.

I cannot permit the occasion to pass without expressing my grateful appreciation of the work which you have done and the singleness of spirit with which your associates and yourself have devoted themselves to the great work which was placed in the hands of the General Medical Board of the Council of National Defense. While it would be invidious to make any appraisal of the work of your board in comparison with that of any other agency organized in emergency, I need not, I know, assure you that the Government appreciates deeply and genuinely the great and essential contribution which has been made by the Medical Board in the mobilization of the civilian profession, its classification as to specialties and fitness, and in the preparation and organization of information which would enable the department to secure from the manufacturers of the country the vitally necessary instruments and supplies for the medical care and attention of our men in the field.

Since the cessation of hostilities the work of the board has been rounded out to completion. I beg you to accept for yourself and your associates this expression of my deep appreciation of the service which you have rendered to the country.

Cordially yours,
Newton D. Baker,
Secretary of War."

Dr. Martin's letter to the members of the State and County Committees follows:

"Council of National Defense,
Washington, March 25, 1919.

From: Chairman, General Medical Board,
Council of National Defense.
Subject: Termination of War Activities.

Upon the signing of the armistice on November 11, 1918, the strenuous war time activities of the committees of the Medical Section of the Council of National Defense automatically ceased. As the unfinished business in the hands of the committees at that time is now approaching completion, you are hereby notified of the termination of your war duties as a State Committeeman on April 1, 1919.

Not until the history of our part in the great war is written will the people realize the important rôle the medical profession of the United States played in making our country a deciding factor in winning the war. Do you realize that in the year before our entry into the conflict the commissioned officers in the Medical Departments of the Army and the Navy numbered less than five hundred in each service and that practically 40,000 civilian doctors had been added to these two corps by the time hostilities had ceased? When the story is told of the enrollment of these thousands of doctors, it must give the largest credit to our many state and county committees who labored so patriotically and continuously to carry out the recommendations of the organization under which they worked, the Council of National Defense, and thus aided the administrative departments of the Surgeons General of the Army, the Navy, the Public Health Service, and the Provost Marshal General.

The work of these committees under the direction of the General Medical Board had to do with activities of which the following is a brief summary: Recruiting medical officers; standardization of medical and surgical supplies; coöperation in controlling venereal diseases; mobilizing five thousand dental surgeons; establishing committees on hygiene, sanitation, general surgery, orthopedic surgery, ophthalmology, otology, rhinology, and laryngology, general medicine, nursing, women physicians and medical schools; organizing medical advisory boards; the study of industrial medicine; securing through legislation increased rank for reserve medical officers; and finally, individual classification of the members of the profession through the medium of the Volunteer Medical Service Corps.

I want you to know that those of us who have had the responsibility of organizing and enrolling the medical profession and resources appreciate the value of your work and thank you for it from the bottom of our hearts. This includes the Secretary of War who presides over the Council of National Defense, the Secretary of the Navy, who is one of its members, and the President of the United States, who appointed the Council and on two occasions has said, in speaking of our state and county committees: "Will you not be kind enough to convey to them a message of sincere appreciation from me of their services as authorized governmental agencies? . . . . The health of the Army and the Navy and the health of the country at large is due to the coöperation which the public authorities have had from the medical profession."

Finally, in sending this communication to you after our two years of stressing work together, I want to thank you personally for your ever prompt response to my calls for help and for the evidence you have always shown me of your loyalty, fidelity and friendship.

Yours very truly,
Franklin Martin,
Chairman, General Medical Board,
Council of National Defense."

SUPPRESSION OF PROSTITUTION IN PORTO RICO.

A report from the Attorney General to the Governor of Porto Rico gives an interesting and valuable account of the efforts to suppress prostitution in Porto Rico. Plans to mobilize 12,000 men on the island gave occasion for a vigorous campaign for combating the prostitution and the resulting venereal disease. Records of the United States Army for Porto Rico show that during the first six months of 1899 the rate of venereal admission per thousand per annum was 467.80. In 1897 the venereal admission rate for the continental army of the United States was 84.50 per thousand. Little change has taken place during the last twenty years. The first weekly report of the conditions at Camp Las Casas gave 471 admissions for venereal diseases among the recently drafted men, which was higher than for any other camp.

A determined effort has been made to prevent women affected with venereal disease from spreading disease among the troops. A special hospital for women was maintained by the municipality of San Juan, to register and treat public women, and during the period of one year, 677 women were registered for the first time in that institution. During the fiscal year ending June 30, 1917, 1,540 women were clinically examined, with the result that 95% were found to be affected with venereal disease. Criminal laws against prostitution have been actively enforced; of 1102 cases brought before the courts, 824 convictions were obtained. Three district jails of the island were reconstructed for women only. Complete equipments for the medical care and venereal disease treatment of these women were installed. In all the hospitals, the women were treated for vermin and itch, and the patients were vaccinated and treated for hook worm. Surveys made showed that 92% of the women had gonorrhea; 12% had infectious lesions of syphilis; and 42% more had four plus positive Wassermann reactions although without symptoms. Treatment for the venereal diseases was instituted; cases of gonorrhea were all improved and possibly rendered non-infectious; salvarsan and mercury were intensively applied to the syphilitic cases. All the infectious lesions were cleared, and about 50% of those with four plus Wassermann reactions have had them reduced or rendered negative. Removing these sources of infection had a wonderful effect upon the venereal disease rate at Camp Las Casas. During the first six months at this camp of 12,000 men, only 32 new cases of venereal disease were acquired, which is at the rate of 6 per thousand per annum. This illustrates the remarkable result of the rigorous enforcement of the law against prostitution on the health of an army community.

* * *

ROCKEFELLER FOUNDATION APPROPRIATIONS FOR 1919.

A RECENT issue of *The Rockefeller Foundation* has outlined the work which will be undertaken by the Foundation during the year 1919. Public health work and medical education will be extended, and war work will be completed. The Yellow Fever Commission, headed by General William C. Gorgas, is starting a war on the disease which it is hoped will result in its complete elimination. The public health activities to be carried out during the year will consist chiefly of these efforts against yellow fever, and of campaigns against tuberculosis in France, and against malaria and the hook worm disease. The Commission on Tuberculosis in France, which during the war has been coöperating with the American Red Cross, will continue its work on an enlarged budget at the request of the French authorities. Demonstrations in the control of malaria will be carried on in two Southern states. The campaign against the hook worm disease will be waged during the present year in twelve states of America and twenty-one foreign states and countries.

In addition to this public health work to be carried out by the Foundation's International Health Board, appropriations have been made for special studies and demonstrations in mental hygiene by the National Committee for Mental Hygiene, for the creation and maintenance of a School of Hygiene and Public Health at Johns Hopkins University, and for the development of public health nursing.

The Foundation's chief work of the year in medical education will be in connection with the development of training in modern scientific medicine in China through the Foundation's China Medical Board. This Board is developing a strong medical center at Peking, which will open this autumn, and is planning another medical school and hospital at Shanghai. The Board is also helping to strengthen medical work of other organizations already established throughout China, and is furnishing fellowships for medical study in America by Chinese physicians and nurses and of medical missionaries on furlough.

* * *

CLINICAL OBSERVATIONS IN MILITARY ROENTGENOLOGY.

A REPRINT from the *American Journal of Roentgenology* describes clinical observations in military roentgenology, with especial reference to the bismuth-iodoform-paraffin paste of Morrison and to a method for the determination of the presence of foreign bodies by secondary emanations. The conditions described by Brown and Young are not unusual and are likely to have been met with by any roentgen worker who has served in the European war area. In a hospital where speed is an utter necessity, it is important to handle quickly the simpler cases in order to be able to exercise greater precision in localizing methods where more complicated cases are involved. The capacity for speed must be equal to the pressure, and many methods which have excellent points do not coincide with the necessity for rapidity.

These writers have found that they could work best with one or two simple methods—a simply managed parallax method and a method of displacement such as might be exemplified in the Strohl method. Their record of 143 localizations in 23 hours tends to confirm this statement. It is essential to localize as near to the foreign body as possible. The method used by these two workers involved two steps: (1) a preliminary "gross localization," and (2) finding the central ray and proceeding with the localization method of election. Of the various antiseptic methods employed by the British, perhaps the one most frequently encountered was the presence in or about the wound of the so-called bismuth-iodoform-paraffin paste of Rutherford Morrison.

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LIEUTENANT-COLONEL JOHN McCRAE, POET AND PHYSICIAN.

It will be of interest to the profession to learn that John McCrae, the author of "In Flanders Fields," one of the most beautiful lyrics that has been written since the beginning of the war, was a physician as well as a poet, and had studied and practised medicine for twenty years. After his graduation from the University of Toronto, honored by a scholarship in physiology and pathology and a gold medal, he served as resident house physician at the Toronto General Hospital and at Johns Hopkins; then as pathologist to the Montreal General Hospital and to the Alexander Hospital for infectious diseases. Later he served as assistant physician at the Royal Victoria Hospital and as lecturer in medicine at the University. He became a member of the Royal College of Physicians, London, and of the Association of American Physicians. In the Boer War, John McCrae earned the rank of Lieutenant-Colonel and received the Queen's medal with three clasps in recognition of his service in that campaign. On January 28, 1918, after two years of gallant war service with the Canadian forces, he died in France of double pneumonia. "In Flanders Fields" is an eternal memorial of this physician, one of the small but distinguished number of physicians who have attained eminence also as men of letters.

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MEDICAL NOTES.

Recrudescence of Influenza.—*The British Medical Journal* reports a recrudescence of influenza in Great Britain, particularly in the northern sections. There has been a high mortality rate in Edinburgh, Glasgow, Dundee, Newcastle-on-Tyne, and Liverpool. The deaths from influenza in London for the week ending February 22 numbered 653. For the week ending March 1, 3,850 deaths from influenza were reported from 96 of the large towns.

In Dublin, an outbreak of influenza is reported. The disease can be treated more efficiently now than in the autumn, for the removal of military patients from the general hospitals has allowed an increase in hospital accommodation for civilian sufferers.

The New Children's Hospital, Iowa.—The New Children's Hospital in Iowa was begun in the fall of 1917 and is now ready to receive children who have hitherto lived in the main University Hospital. The hospital is a one-story pavilion, with a frontage of 350 feet. The general plan conforms to the "unit system," to facilitate future expansion. In the center are the administrative offices, and to the east and west are the orthopedic and pediatric wards. The orthopedic section provides accommodations for one hundred patients. In the north wing are the dining room, kitchen, and a temporary schoolroom. To the south are the out-patient department and the orthopedic gymnasium. In addition to these divisions, there is an extension for the operating room and a gallery, surgical supply room, and sterilizing room, and extensions containing wards and rooms for the patients. All the wards open through French doors upon a concrete platform, so that the beds may be rolled out into the open air.

A Military Appointment.—Lt.-Col. E. G. Zabriskie of New York City has been designated Senior Consultant in Neuro-psychiatry for the American Expeditionary Forces, succeeding Col. Thomas W. Salmon, who has returned to the United States for duty in the Surgeon-General's office. Lieutenant-Colonel Zabriskie went to France as Divisional-psychiatrist of the Fourth Division. Subsequently he was Consultant in Neuro-psychiatry to the Third and Fifth Corps and to the First Army. After the armistice he served as Consulting Neuro-psychiatrist to the Savenay Hospital Center.

DEVELOPMENT OF SURGERY DURING THE WAR.—Colonel Joseph A. Blake is reported to have remarked in a recent address at the Sorbonne that "There has been little new in the development of surgical knowledge during the war." In speaking of the treatment of wound infections, he is reported to have said:

"There have been fruitful investigations and observations in regard to the treatment of wound infections and shock. In the first two years of the war a search for novel treatments led surgeons toward an effective panacea for wound infections by antiseptic means. It is only more recently that aseptic principles have become reëstablished."

In concluding his address, Dr. Blake is reported to have expressed the hope that inter-allied surgical work during the war would be continued by a free exchange of ideas, lectures, and visits between the leading allied medical bodies and universities.

PRIZE FOR RESEARCH ON ASPHYXIATING GASES.—The Montyon prize has been awarded by the Académie des Sciences to Drs. Henri Guillemard and André Labat, of Paris, for their researches on asphyxiating gases. The value of the prize is £100.

ITALIAN RED CROSS.—The sum of £14,414 has been presented to the Italian Red Cross by the Government of the Republic of Cuba for distribution among the families of soldiers who have died in the war and men who have been invalided by service.

NEW PRESIDENT-GENERAL OF THE ITALIAN RED CROSS.—By a royal decree Senator Count Giuseppe Frascara has been named President-General of the Italian Red Cross.

WOMEN IN ARMY MEDICAL DEPARTMENT.—The Army Medical Department at Washington has given appointments to two women psychologists, Dr. Mabel Fernald and Dr. Margaret Cobb. The Psychological Division can use trained women for handling the army reports, and it may possibly call upon them to help in special hospitals dealing with cases of reconstruction.

BOSTON AND MASSACHUSETTS.

WEEKLY DEATH RATE IN BOSTON.—During the week ending April 5, the number of deaths reported was 240 against 283 last year, with a rate of 15.71 against 18.81 last year. There were 35 deaths under one year of age against 31 last year.

The number of cases of principal reportable diseases were: Diphtheria, 43; scarlet fever, 57; measles, 4; whooping cough, 10; typhoid fever, 3; tuberculosis, 50.

Included in the above were the following cases of non-residents: Diphtheria, 4; scarlet fever, 5; tuberculosis, 2.

Total deaths from these diseases were: Diphtheria, 2; whooping cough, 1; tuberculosis, 17.

Included in the above were the following non-residents: Tuberculosis, 1.

Influenza cases, 69; influenza deaths, 10.

INFLUENZA IN BOSTON.—On April 1, there were reported to the Boston Health Department 18 new cases of influenza, with 1 death, and 11 new cases of pneumonia, with 5 deaths. On April 2, 15 influenza cases and 5 of pneumonia, with 4 deaths from influenza and 2 from pneumonia, were reported.

NEW ENGLAND NOTES.

NURSES IN NEW ENGLAND DIVISION.—A survey of the nursing resources of New England has been made in order to furnish the Government data in regard to nursing material which could be drawn upon in case of emergency. A report which has been submitted shows that there are 18,208 available nurses in New England, exclusive of Connecticut, which does not belong to the division. Of these there are 12,175 in the Commonwealth of Massachusetts, of whom 5,277 are located in Metropolitan Boston. The total for Maine is 1,805; for New Hampshire, 1,189; for Vermont, 610; for Rhode Island, 1,429.

Among representative cities, Portland, Me., returns 355; Concord, N. H., 225; Rutland, Vt., 63; Providence, R. I., 1,087; New Bedford, 304; and Worcester, 837. Among counties throughout the division, Essex, Mass., leads all with a total of 1,326.

The survey includes nurses of every class—graduate nurses, pupil nurses, undergraduate nurses, practical nurses, trained attendants, midwives, and every person who has taken a Red Cross course.

Miscellany.

RÉSUMÉ OF COMMUNICABLE DISEASES FOR FEBRUARY, 1919.

GENERAL PREVALENCE.

The total number of cases reported for the month of February was 11,737, giving a case rate per 100,000 population of 296.5. Excluding influenza and venereal diseases, 4,300 reports were received for the more common reportable diseases. The case rate being 106.1 as compared with 9,374 cases and a case rate of 253.8 for the corresponding month of 1918.

Diphtheria with 679 cases was the most frequently reported disease. Practically the same rate was obtained as for the corresponding month of 1918. The rates were respectively 17 and 17.3.

While no one city showed any alarming incidence, several, from the continuous reports of cases, must have had many different foci of infection in the form of unknown carriers, and only by intensive work can this be remedied with a diminution in the number of cases.

Scarlet Fever was reported in 651 cases, a case rate of 14.1 being shown.

The Gloucester outbreak has quieted down.

Typhoid Fever showed an increase for the month, 73 cases being reported, 23 of which occurred in Lawrence, 4 in one family in Boston and 4 in one family in Rockport.

Whooping Cough was reported in 363 cases, twice as many as in February, 1918, when 181 were reported.

Influenza fell off very rapidly, 6435 cases being reported in February.

Lobar Pneumonia likewise dropped from 1095 cases in January to 655 in February.

RARE DISEASES.

Anterior Poliomyelitis was reported from Boston, 1; Dedham, 1; total, 2.

Dysentery was reported from Boston, 2.

Epidemic Cerebrospinal Meningitis was reported from Boston, 3; Braintree, 4; Brockton, 1; Camp Devens, 1; Fall River, 1; Hudson, 1; Lawrence, 2; Lee, 1; Lynn, 1; Malden, 1; New Bedford, 1; Newton, 1; Northboro, 1; Peabody, 1; Somerville, 1; Webster, 1; Whitman, 1; Worcester, 2; total, 25.

Malaria was reported from Mansfield, 1.

Pellagra was reported from Haverhill, 1.

Septic Sore Throat was reported from Arlington, 2; Boston, 8; Fall River, 1; Haverhill, 2; Lynn, 1; Sharon, 1; Taunton, 1; and Somerville, 6; total, 22.

Trachoma was reported from Boston, 2, and Cambridge, 1; total, 3.

RED CROSS CONFERENCE AT CANNES.

The Committee of Red Cross Societies authorizes the following statement:

"With a view of preparing a program to relieve suffering and combat disease in the general interest of humanity, the Committee of Red Cross Societies has called a conference of leading experts of the world to be held at Cannes, France, beginning April 1st. Below is a list of men, each a foremost specialist in his chosen field, who have been invited to attend the conference as representatives of their respective countries, France, England, Italy, Japan and the United States.

FRANCE.

Prince Paul Emile Roux, Professor; Director Pasteur Institute, Paris.

Dr. F. Widal, Physician to Hospital Cochin, Paris.

Major Edouard Rist, Service de Sant. France.

Dr. Calmette, Pasteur Institute, Lille, Director.

Dr. Leon Bernard, Paris.

Professor Paul Courmont, Lyons.

Dr. Charles Louis Alphonze Laveran, Professor Protozoölogy, Pasteur Institute, Paris,

Dr. Milian, St. Louis Hospital, Paris.

Dr. Amand Delille, Paris.

Dr. Maurice Pehu, University of Lyons.

ENGLAND.

Sir William Osler, Regius Professor of Medicine, Oxford University.

Sir Walter M. Fletcher, Secretary of Medicine, Research Committee.

Colonel S. Lyle Cummins, Advisor in Pathology, B.E.F.

Sir Robert Phillips, Edinburg.

Sir Arthur Newsholme, London.

Dr. F. W. Menzies, Principal Assistant Medical Office London County Council.

Lt. Col. Sir Ronald Ross, Consultant for Malaria, British Army, Professor of Tropical Sanitation, University of Liverpool.

Col. L. W. Harrison, R.A.M.C., London.

Sir Wm. Leslie Mackenzie, Medical Member Local Government Board for Scotland, and Royal Commission on Housing.

Dr. Truby King, New Zealand.

ITALY.

Dr. Ettore Machiafava, University of Rome.

Lt. Col. Aldo Castellani, University of Naples.

Dr. Giuseppe Pastanelli, University of Rome.

Col. Caesar Baduel, Florence, Chief of Bureau of Sanitary and Local Welfare, Italian Red Cross, Rome.

Dr. Poli, University of Rome.

Dr. Ducroy, University of Pisa.

Dr. Valagussa, University of Rome.

JAPAN.

Dr. Ryotaro Inaba, Director of Hygiene Laboratory, College of Medicine.

Dr. Kiyoshi Shiga, Professor Imperial Institute for Infectious Diseases, Tokio.

Dr. Hideyo Noguchi, Rockefeller Institute for Medical Research, New York.

AMERICA.

Dr. William Henry Welch, Director, School of Hygiene and Public Health, Johns Hopkins University.

Dr. Simon Flexner, Director Laboratories of Rockefeller Institute for Medical Research, New York.

Dr. Hermann Michael Biggs, Public Health Commissioner, New York State.

Dr. Edward Robinson Baldwin, Director of Edward L. Trudeau Foundation for Tuberculosis, New York.

Dr. Theobald Smith, Director of Animal Pathology, Rockefeller Institute for Medical Research.

Dr. Wickliffe Rose, Director General International Health Board, Rockefeller Foundation.

Col. George Walker, U. S. Army, Fellow American College of Surgeons in charge of Venereal Diseases, A.E.F.

Col. Homer Swift, U. S. Army, Consultant in Medicine, A.E.F.

Col. William F. Snow, A.E.F. Army, President of Association of State and Provincial Boards of Health of North America.

Dr. Luther Emmet Holt, Professor Diseases of Children, College of Physicians and Surgeons, New York.

Dr. Samuel Hamill, Professor Diseases of Children, Philadelphia Polyclinic and College for Graduates in Medicine; Director Child Welfare for State of Pennsylvania.

Dr. Fritz Talbot, Chief of Children's Medical Department, Massachusetts General Hospital, Boston; American Red Cross representative.

Dr. Livingston Farrand, formerly President of the University of Colorado; Director General American National Red Cross.

Major A. M. Garvin, Chief, Bureau of Tuberculosis, A.R.C., France.

Major William Palmer Lucas, Professor of Pediatrics, University of California, Medical School; Chief of Children's Bureau, American Red Cross, France.

Col. Richard P. Strong, U. S. Army, M.D., Sc.D., Director Department of Medical Research and Intelligence, American Red Cross; Professor Tropical Diseases, Harvard University Medical School.

ADDITIONAL REPRESENTATIVES.

Asst. Surgeon General N. S. Cummins, U. S., Public Health Service now in France.

Col. F. F. Russell, Representing War Department in connection with Public Health Conference.

Lt. Col. Lindsay R. Williams, U. S. Army.

Acceptances have already been received from a majority of those to whom invitations have been sent and it is expected that a favorable reply will have been received from the others before April 1st. These first conferences at Cannes are preliminary, on the part of the Committee of Red Cross Societies to formulate and to propose to the Red Cross Societies of the World an extended program of Red Cross activities in the interest of humanity.

The first conference will have to do with the preparation of a program which deals with the organization of the International Council and Bureau of Hygiene and Public Health, which will consider the work to be undertaken in connection with the prevention of epidemic disease, tuberculosis, venereal disease and child welfare. Specialists who will attend are the recognized authorities on these subjects. As a result of these conferences a complete program will be made which will deal with the latest and best means to relieve suffering and combat disease.

This program will be submitted at a conference of all Red Cross Societies to be held in Geneva thirty days after Peace is officially declared. The call for this later conference was issued February 13th by the International Red Cross at Geneva. Announcement of the formation of the Committee of Red Cross Societies was made in Paris about three weeks ago. It has established headquarters at Cannes, with administrative headquarters at No. 2 Place de Rivoli, Paris. The Committee is composed of representatives of Red Cross Societies of France, Great Britain, Italy, Japan, and the United States, with Henry P. Davidson, formerly Chairman of the War Council, American Red Cross, as Chairman.

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Correspondence.

THE WRONG KIND OF "GROUP MEDICINE" IN SMOLLETT'S TIME.

31 Massachusetts Ave., Boston, Mass.,
March 29, 1919.

Mr. Editor:

The devious ways employed in acquiring a fashionable practice in Smollett's time are well set forth in one of his masterpieces, "Ferdinand, Count Fathom." In all probability it is from Smollett's direct observation of "Men, Manners and Medicine" of the times, though his chief character was supposed to have flourished considerably before Smollett's time of medical practice.

Fathom, his finances reduced to a low ebb, decided to take up the practice of physic, though his qualifications for practising this art consisted only in his own shrewdness and keen judgment of the foibles and eccentricities of the fashionable women of the period. After considerable success as a fashionable practitioner at Tunbridge Hot Wells, he realized he must follow the visitors back to London if he wished permanently to recoup his finances.

His first care was to provide himself with the handsomest and showiest coach which he could buy. "A chariot was not set up for the convenience of a man sinking under the fatigue of extensive practice but as a piece of furniture every way as necessary as a large periwig with three tails, and a physician, let his merits in other respects be never so conspicuous, can no more expect to become considerable in business without the assistance of this implement than he can hope to live without food, or breathe without a wind-pipe. None of these observations escaped the penetrating eye of Fathom, who, before he pretended to seat himself in this machine made proper inquiry into all the other methods with a view to keep the wheels in motion. In his researches he found that the great world was wholly engrossed by a few practitioners who had arrived at the summit of reputation, consequently were no longer obliged to cultivate those arts by which they rose, and that the rest of the business was parcelled out into small enclosures occupied by different groups of personages, male and female, who stood in rings, and tossed the ball from one to another, there being in each department two sets, the individuals of which relieved one another occasionally. Every knot was composed of a waiting woman, nurse, apothecary, surgeon, and physician. and sometimes a midwife was admitted to the party and in this manner the farce was commonly performed: A fine lady, fatigued with idleness, complains of the vapors, is deprived of her rest, though not so sick as to have recourse to medicine. Her favorite maid, tired with giving her attendance in the night, thinks proper for the benefit of her own purpose to complain of a violent headache, and recommends to her mistress a nurse of approved tenderness and discretion, at whose house (in all likelihood) the said chambermaid hath oft given the rendezvous to a male friend. The nurse, well skilled in the mysteries of her occupation, persuades the patient that her malady, far from being slight or chimerical, may proceed to a very dangerous degree of the hysterical affection unless it be nipt in the bud by some very effective remedy. Then she recounts a surprising cure performed by a certain apothecary, and appeals to the testimony of the waiting woman who, being the gossip of his wife, confirms the evidence and corroborates the proposal. The apothecary being summoned, finds her ladyship in such a delicate situation that he declines prescribing, and advises her to send for a physician without delay. The nomination of course falls to him, and the doctor being called, declares the necessity of immediate venesection, which is accordingly performed by the surgeon of the association."

It is not to be wondered at that Fathom soon achieved a great success in this unholy form of "group medicine," and certainly became a good rival in fiction of Perkins of Metallic Tractor fame who, years after Smollett's time, relieved the aristocracy of untold wealth.

Very truly yours,
William Pearce Coues, M.D.

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SOCIETY NOTICES.

Middlesex South District Medical Society.—The Annual Meeting of the Society was held at the American House, Boston, on Wednesday, April 16, 1919, at 11.00 A.M. The annual oration was delivered at 12 o'clock, noon, by Dr. James W. Sever, of Cambridge. Subject: "The Medical Aspects of the Workmen's Compensation Act."

Charles W. Adams, *Secretary.*

Suffolk District Medical Society.—The annual meeting of the Suffolk District Medical Society will be held April 30, 8.15 P.M., at the Boston Medical Library, 8 The Fenway.

Speakers:

Dr. David L. Edsall. "Some Relations of the Practitioner to Industrial Medicine."

Dr. Cecil K. Drinker. "An Unusual Type of Metallic Poisoning."

J. Bapst Blake, M.D., *President.*
George R. Minot, M.D., *Secretary.*

Censors' Meeting.—The Censors of the Suffolk District Medical Society will meet for the examination of candidates at the Medical Library, No. 8 The Fenway, Thursday, May 1, 1919, at 4 o'clock.

Candidates should make personal application to the Secretary and present their medical diploma at least two weeks before the examination.

George R. Minot, M.D., *Secretary.*

Essex South District Medical Society. — The Censors of the Essex South District Medical Society will meet at the Salem Hospital, May 1, 1919, at 4 P.M., to examine candidates for admission to the Massachusetts Medical Society. Application blanks can be obtained from the Secretary, Dr. H. P. Bennett, 41 Lewis Street, Lynn.